JETR

Hope and Love in Sequential Games

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Abstract. This paper discusses how hope and love help to facilitate cooperation in sequential games by removing conflicts of interests. Rationality combined with material self-love induces players to build institutions that ensure that interests run parallel by constraining people from obtaining material goods without compensating others. In complex situations, however, substantial transaction costs may prevent organizing reciprocity between receiving and giving material goods. Broader motivations based on faith, hope, and love may then help to create cooperation in sequential games. In particular, hope and love may motivate leaders to build up the collective good of a group's social capital through acts of service.

Keywords: hope, agape, leadership, sequential games, institutions

1. Introduction

This paper focuses on how leadership motivated by *agape* love can create and restore faith, hope, and love in sequential games. Section 2 introduces the concept of agape in a broader model of human motivation than material self-interest alone. This model expands the model of human motivation for simultaneous games discussed in Bovenberg and van Os (2025) with a future orientation. In this way, the model can be applied to sequential games in which leaders account for the strategic effects of their choices on the future behavior of others.

Section 3 explores a sequential game in which rational, self-interested agents can exchange their interests by concluding private contracts. Rationality combined with self-love helps humans to cooperate. In particular, rational self-love gives people incentives to create a cooperative game by building institutions that allow them to exchange credible commitments to serve each other. These institutions that remove conflicts of material interest, however, may give rise to substantial transaction costs and decision costs. Indeed, these institutions must enforce material reciprocity at each point in time.

Section 4 shows how hope and love can ensure that a sequential game can have a single cooperative equilibrium even if transaction costs make it impossible for legally binding

agreements to remove all conflicts of material interests. If a group of players who are motivated by reciprocal *philia* love are trapped in a non-cooperative situation, a rational, forward-looking leader motivated by unconditional agape love can deliver the group from the lack of cooperation by creating trust. In particular, a forward-looking leader cooperating with others who are not yet cooperating at present is making an investment in building up the collective good of social capital as the group's team spirit of mutual trust and love.

2. A model of human motivation

Homo oeconomicus versus homo amans

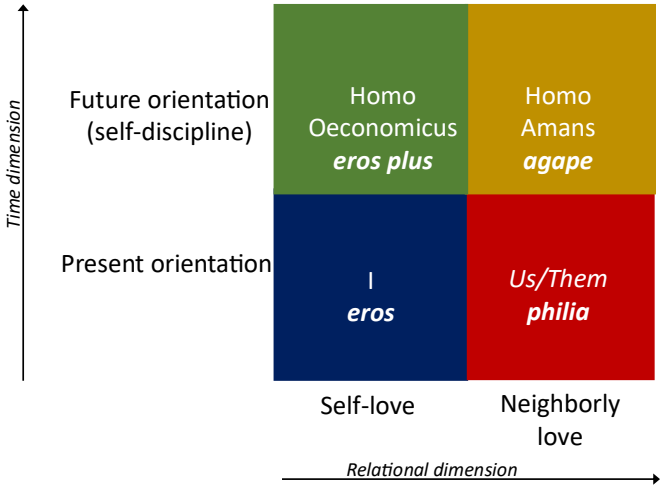
Bovenberg and van Os (2025) contrast two models of human motivation for the purpose of analyzing simultaneous games: the *homo oeconomicus* and the *homo amans.* Borrowing from Lewis (1960), we adopt Greek names for two types of motivational love corresponding to these two models. Pursuing material goods as a source of enjoyment, the homo oeconomicus is governed by *eros* (self-love). *Philia* (conditional neighborly love), in contrast, motivates the Homo Amans to consider the well-being of neighbors who are cooperating—and with whom the Homo Amans thus identifies.

Agape as hoping love

To analyze sequential games, we extend the homo oeconomicus and the Homo Amans with a future orientation (see figure 1 below). For the homo oeconomicus, the goal is to maximize one's own consumption of material goods over time through self-discipline. We continue to employ the word eros (or eros plus) because the focus is still on material self-love. For the Homo Amans, however, a third type of love is introduced: *agape*. In particular, agape is inspired by the hope of a better future for all (the self and neighbors): a leader may choose to serve neighbors not because these neighbors are cooperating at present, but because of the leader's hope that serving others at present may help create trust and love—leading therefore to cooperation of the neighbors in the future. Even though others may act non-cooperatively at present, and thus behave as enemies, the leader thus hopes they will act cooperatively if their trust in cooperation is restored. Those who seem to be enemies are thus in fact friends. This means that leaders inspired by agape love act cooperatively because of hope as the vision of "things not yet seen."[1] By bringing forward the joy of the imagined future cooperation that is being aimed at, agape produces spiritual goods as a source of well-being—already in the present—for the leader. These spiritual goods are enjoyed while the leader bears material costs as investment in the imagined future.[2]

[1] Romans 8:24-5.
[2] 1 Corinthians 13:3; Hebrews 12:2.

Figure 1. HomoAmans, with future orientation



Redemption from lack of trust and love

When Paul addresses the governance of the church in Corinth, which suffered from disunity, he points to agape as the supreme way to restore cooperation. Hope refers to the belief that (i) a group has the potential to cooperate in the future and that (ii) this cooperation is fruitful in terms of yielding both a flourishing creation and more human well-being. The reward lies in the future, and can thus be 'seen' at present only in the mind or spirit. The basis for this hope is trust in God as a good Father, who created a good creation with humans who are able to cooperate, and whose Spirit works towards redeeming life through cooperation. Even if people behave as enemies at present, a leader can be hopeful that enemies will become friends because of trust in God as their Creator. This hope originating in faith in a good, loving Provider motivates leaders to forgive rather than to reciprocate non-cooperative acts.

3. Enlightened self-interest: create enforceable agreements to cooperate

Prisoner's dilemma as failed cooperation

The prisoner's dilemma captures the case of failed cooperation. Whereas both players would gain if they would cooperate by serving each other, they do not succeed in aligning their interests. Table 1 shows the pay-off matrix of a symmetric prisoners dilemma. Both players can give up a scarce resource that they value at $C>0$ but which provides a greater benefit $B>C$ to the other player. Cooperation would benefit both players by giving them a positive surplus $B–C$. However, the players end up in the non-cooperative situation if they pursue their material self-interest and take the behavior of the other player as given. Indeed, the dominant strategy of both players is to play non-cooperatively. Hence, the dominant-strategy equilibrium is the non-cooperative equilibrium in which both players earn a pay-off of 0.

Table 1. Prisoner's dilemma (B>C>0)

Anna / Ben	Cooperate	Defect
Cooperate	(B-C, B-C)	(-C, B)
Defect	(B, -C)	(0, 0)

Turn non-cooperative game into a cooperative sequential game

Rational self-interested agents can turn the non-cooperative prisoner's dilemma into a cooperative game in which they can make binding agreements to serve each other. Several conditions must be met for a game to be cooperative. In particular, in the first stage of the extended game, parties make agreements (or rules) on mutual responsibilities. In these agreements, they commit to serve each other.[3] In the second stage, these commitments are realized by delivering the promised goods. In the final, third stage, the agreements are enforced through sanctions. For example, the judiciary can punish those who in the second stage of the game failed to comply with the agreements concluded in the first stage of the game.

Table 2. Cooperative game with contractable goods (F>C).

Anna / Ben	Cooperate	Defect
Cooperate	(B-C, B-C)	(-C, B-**F**)
Defect	(B-**F**, -C)	(0-**F**, 0-**F**)

[3] In case of public goods, public laws may impose commitments on private citizens because a voluntary private contract between many parties may be difficult to negotiate if each partner has veto power. In particular, some parties may agree only if they receive most of the surplus. Hence, with many stakeholders, voluntary bargaining is typically inefficient: disagreement about the distribution of the surplus prevents the surplus from being realized. Inefficient voluntary bargaining provides a case for coercing citizens to comply with public laws set by lawmakers.

Incentives of players in the second stage of the game

Table 2 shows how the prisoner's dilemma game is transformed if the parties have agreed in the first stage that a fine *F* is imposed on them in the third stage if they default on the agreement to cooperate in the second stage. If this fine exceeds the costs of cooperation (i.e. *F>C)*, both players in the second phase of the game have a dominant strategy to cooperate. Accordingly, the equilibrium is now cooperative rather than non-cooperative.

Governors use self-love for the common good

The penalties *F* in effect remove the option of the players to enhance their individual interest at the expense of the collective interest: the players can no longer receive without giving something back to others. By organizing reciprocity between giving and receiving, the governors[4] that set the rules of the game in the first stage of the game in effect remove the conflicts between material individual interests in the second stage of the game. The penalties that they impose serve as incentives ensuring that the individual material self-interests of the decisionmakers in the second stage of the game align with the common good.

Organizing reciprocity by exchanging commitments

Less is thus more: additional constraints that lower pay-offs in case of defection yield an equilibrium with higher pay-offs for all. Restraining your own freedom by cutting your own pay-offs of defection in the second stage of the game is rational for self-interested individuals in the first stage of the game because of the strategic effects[5] of that self-constraint on the trust—and thus the behavior—of others. In particular, by imposing constraints on yourself by committing yourself to serving others, you encourage others to commit to serve you. Indeed, in the first stage of the game, players can exchange their interests by exchanging credible promises to serve each other. In that stage of the game, players do not take the behavior of others as given, but realize that they can organize reciprocity. Indeed, from the ex-ante point of view of the first stage of the sequential game, each self-interested party faces an incentive to organize reciprocity in the second stage of the game so that material interests then do not conflict but instead run parallel.

Intelligent design of the rules of the game

Coase (1960) extended the observation of Adam Smith that cognitive rationality of self-interested individuals is a powerful force for creating cooperation in competitive markets.

[4] These leaders choose first in sequential games so that other decisionmakers (so-called followers) can observe these choices and thus respond to the choices of the leaders. In the case of private contracts, these leaders (or governors) coincide with the decisionmakers in the second stage of the game. In the case of public laws, the leaders are lawmakers and thus are not the decisionmakers in second stage of the game.

[5] A strategic effect is an effect of a decision of one player on the behavior of other players. Whereas an *external* effect involves the effect of a choice on the *welfare* of others, a *strategic* effect involves the effect of a choice on the *behavior* of others.

Indeed, the core insight of the so-called Coase theorem[6] is that players do not have to take the rules of a non-cooperative game as given but can design the rules of the game intelligently in order to create a cooperative game that generates value for all. In particular, the players can extend the game with more stages to negotiate and enforce agreements. In fact, these observations of Coase have given rise to a whole new branch of economics, namely so-called institutional economics. Institutions (involving, for example, governments, firms, and other organizations) can be viewed as the rules of the game that allow players to commit to credible agreements to serve each other. In this way, they can create a cooperative game.

Descriptive and prescriptive role of institutional economics

Institutional economics can have a positive, descriptive role but also a more normative, prescriptive role. In a descriptive role, it can explain why institutions emerged, namely as instruments to create value by removing conflicts of interest. Institutional economics can play a more normative role by prescribing institutions that protect vulnerable interests better so that potential conflicts of interest are eliminated.

Conditions for the original Coase theorem: contractable goods

The original Coase theorem focused on private legal contracts as a way to create cooperation. This original theorem relies on several conditions, falling into three categories. The first is that the exchanged goods are contractable. This means that the quality of the goods that suppliers promise to deliver to demanders can be described in legally binding agreements. In particular, the contracts describe what the mutual responsibilities are in all relevant contingencies. Moreover, the information on whether the parties have kept their contractual commitments must be verifiable by an independent, third party who enforces the agreements.

Independent judiciary enforcing rules of the game

A second class of conditions underlying the Coase theorem involves the institutional environment. In particular, an independent judiciary must exist. Moreover, property rights must be well-defined. More generally, the rules of the game must be credible. In particular, the players must expect that they are rewarded if they cooperate, and punished if they defect. Hence, the threat of punishment must not take away their belief in rewards. Indeed, the players must accept the punishments as legitimate.[7]

Rationality

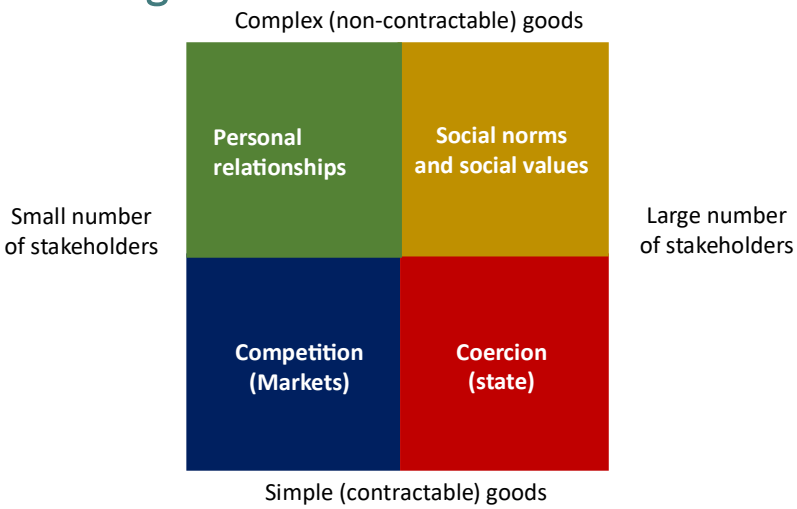
A third class of conditions for the Coase theorem to hold involves the behavioral assumptions

[6] For an extensive discussion of the Coase theorem and its extensions, see Medema (2020).

[7] The players must not view the threats of punishment and the monitoring of the enforcers as defection by the enforcers and the governors. If punishments are considered to be illegitimate by strongly reciprocal players (see section 4) because these players lack faith in the good motives of the lawmakers and the enforcers, the threat of punishment may be counterproductive. In particular, by embittering the players, and thus activating negative reciprocity, such threats deepen conflicts of interest.

about the players themselves.[8] These players are rational and know how to best pursue their self-interest. They should be able to think through and feel through the strategic effects of their actions in the first stage of the game.[9] Especially in the case of complex cooperation this demands a lot from the cognitive and emotional abilities of the players.

Figure 2. Institutional economics



Coase theorem extended with transaction costs

The Coase theorem can be extended with transaction costs. These are defined as the costs of organizing reciprocity in the second stage of the game when players exchange goods. These costs may occur both in devising agreements ex ante (i.e. in the first stage of the game) and in enforcing agreements ex post (i.e. in the third stage of the game). The Coase theorem extended with transaction costs states that institutions maximize the collective surplus net of transaction costs. Figure 2 shows how institutions depend on the complexity of the cooperation along two dimensions. The horizontal dimension involves the number of stakeholders: on the left-hand side, only a few stakeholders are involved in the actual exchange of goods but on the right-hand side there are many. Indeed, the left-hand side involves private goods, and the right-hand side involves public goods. The vertical dimension refers to the complexity of the goods that are being exchanged: contractable goods are on the bottom, and non-contractable goods are on top.

Repeated games with non-contractible goods

The upper-left corner of Figure 2 shows that with non-contractable goods cooperation can still be achieved if the simultaneous prisoners dilemma is extended into a repeated rather

[8] The first class of conditions involves the transaction costs ex ante, the second class the transaction costs ex post, and the third class the decision costs of the players.

[9] A related condition is that the parties can bargain efficiently in the first stage of the game. Efficient negotiations establish an agreement about the distribution of the joint surplus without reducing this surplus.

than a sequential game. A repeated game differs from a sequential game in that there is no known final game. Hence, in each stage of the game, the players believe that a positive probability exists that the relationship continues, so that a future exists in which players can be rewarded for cooperation and be punished for defection.

4. Agape and hope applied: investing in social capital

Creating a cooperative narrative

Moral sentiments contain decision costs and transaction costs

Section 3 showed that the combination of cognitive rationality and material self-love can contribute to cooperation—and thus to the creation of material value by and for all. An important condition for this result is that transaction costs are limited so that reciprocity between giving and receiving material goods can be arranged at all times, thereby ensuring that material interests are continuously aligned. This section investigates how moral sentiments can help create cooperation in non-cooperative games in which substantial transaction costs prevent legally binding agreements. Indeed, experimental economics shows that agents often choose to co-operate in a finitely repeated prisoner's dilemma with a known final game (Fehr and Fischbacher 2003).

Strong reciprocity

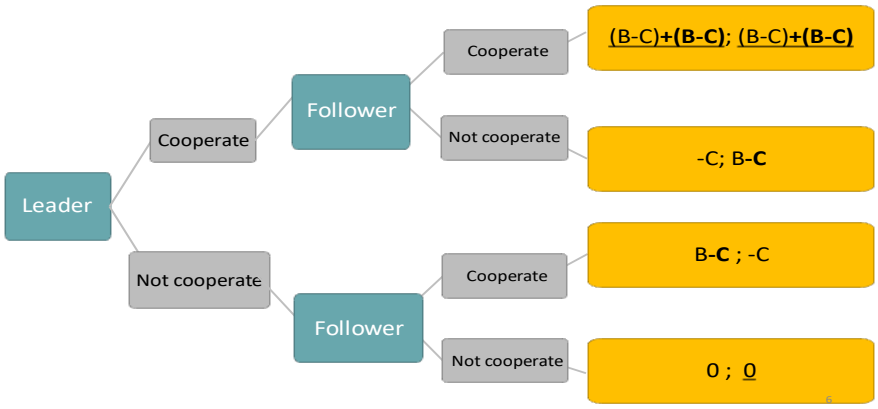
This section assumes the moral sentiments of strong reciprocity, or philia love. Strong reciprocity is a popular model of social behavior in experimental economics (Fehr and Fischbacher 2003), evolutionary biology (Gintis 2000 and Bowles, 2016), and evolutionary psychology (Seabright 2010).[10] A person with these social preferences is willing to reward people who are good to him, even if these rewards impose material costs on him.

Transforming a coordination game into a sequential game

Strong reciprocity transforms the simultaneous prisoner's dilemma or public goods game into a coordination game with both cooperative and a non-cooperative equilibria (Bovenberg & van Os 2025). This section shows how the presence of an agent motivated by Agape love in a sequential version of this game can yield a single cooperative equilibrium.

[10] Dhami (2019) provides an overview of other-regarding preferences, and compares strong reciprocity with other kinds of social preferences.

Figure 3. Sequential game with Philia love



Creating trust by cooperating

Figure 3 shows the decision tree of the sequential game. The bold pay-offs are the immaterial pay-offs due to the moral sentiments of strong reciprocity. The player who can act first is called the leader; the other player who can respond to the choices of the leader is called the follower. In the first stage of the sequential game, the leader can set an example by acting cooperatively. By committing to cooperation, the leader builds the trust of the follower that the interests of the follower are being served. In the second stage of the game, the *philia* player responds then to the cooperative behavior of the leader in the first stage of the game by cooperating as well. Hence, by cooperating in the first stage of the game, the leader in effect sets a cooperative narrative. By embodying this narrative in the first stage of the game, the leader gains the authority to induce the followers to cooperate.

Uncertainty about response of followers

With two players, figure 3 assumes that the leader fully expects the other player to be motivated by *philia* love. In the event that the leader is unsure about the motivations of the other player, the leader cooperates only if the following inequality is met:

$$q > \frac{1}{1 + R(1 + a)}, (1),$$

where q denotes the probability that the leader attaches to the contingency that the follower is motivated by reciprocal *philia* love rather than by *eros* love. q can thus be interpreted as the trust of the leader in the follower.[11] $R \equiv \frac{B-C}{C}$ represents the collective material return on

[11] In a public-goods game with more followers than just one, expression (1) becomes $q > \frac{1}{1+R(1+Na)}$, where N stands for the number of followers and q is the impact of the cooperative behavior of the leader on the social capital of the group as a whole. How much impact does the behavior of the leader have on the trust of the followers in not only the leader but also in each other? q can thus be interpreted as the agency of the leader on the team spirit (or culture) of the group.

cooperation, which can be viewed as one of the elements of hope. Finally, *a* stands for the strength of the agape[12] love of the leader. If *a=1*, the leader fully internalizes the external effects of this action on the follower if the follower is expected to cooperate.

Explicit rules and regulations versus tacit, self-enforcing agreements

Just as in section 3, rational leaders who take into account the strategic effects of their choices help to create cooperation. The difference with section 3 is that we assume that followers are motivated by philia rather than eros alone. Moreover, in contrast to the formal judicial contracts and laws in section 3, the cooperative agreements in section 4 are self-enforcing, and thus do not have to be enforced by a third independent party such as a legal court. Indeed, these tacit agreements (or covenants) can be viewed as social norms enforced by the social value of intrinsic reciprocity. Rather than constraining agents by the threat of punishment, these commitments are enforced by love (i.e. the promise of enjoying the mental benefits of providing material gifts to people with whom one identifies).

Redemption from a trust fall: agape love

Redemption from a trust fall

A group of people who are motivated by philia can become trapped into a non-cooperative equilibrium if the contagious spirit of fear and selfishness goes viral (see Bovenberg & van Os 2025). To deliver the group from such a trust fall, entrepreneurs of hope must restore a cooperative team spirit of mutual trust, regard, and service. Rather than taking the implicit rules of the game in the group as given, they aspire to shape the narratives and spirits that rule the group.

Stabilizing social capital

These entrepreneurs in effect engage in stabilization policy: they aim to protect the credibility of the narrative of mutual cooperation if the household is hit by adverse shocks that harm trust, hope, and love.[13] This sub-section shows how leaders can restore faith in cooperation—and thus protect the collective good of the social capital of a group—by demonstrating their commitment to maintaining mutual trust and love. Adopting backward induction, we first explore the motivation and the behavior of the followers, and subsequently consider how rational leaders take into account the strategic impact of their choices on the behavior of the followers. We thus start with an analysis of the motivation and behavior of the followers before we move to that of the leaders.

[12] We call this agape rather than philia love because this love is not based on observed cooperation but on hope of cooperation. Compare Romans 8:24b-5: “But hope that is seen is no hope at all. Who hopes for what they already have? But if we hope for what we do not yet have, we wait for it patiently.”
[13] Shiller (2020) stresses the importance of narratives in economics.

Motivations of followers: faith in cooperation

Forgiveness as credible signal

Restoring trust in the spirit of cooperation within the group requires credible signals. Deviating from the non-cooperative strategies of others in a non-cooperative situation shows the commitment of the leader to restore cooperation, and thus gives other members of the group hope that cooperation may indeed be re-established. By being the first person to cooperate again, the leader in effect leads by example, and thus helps to restore a cooperative team spirit. Indeed, forgiveness can be interpreted as a sign of faith in future cooperation. It also is a sign of respect and connection that builds up social capital.

Costs make cooperation credible

Actions to restore cooperation must be costly for the leader in order to be credible signs of the leader's belief that cooperation can be restored. Only costly actions are thus signs of hope that restore trust in cooperation.[14] In particular, to re-establish the credibility of cooperation, a leader must do something that is unacceptably costly for those who do not believe in the cooperation narrative. Indeed, these costs can be viewed as the price for restoring credibility and thus gaining authority over the team spirit. Hence, to rebuild trust in cooperation, and thus to (re-)activate the intrinsic willingness of the group to cooperate, a leader must embody in her actions trust in future cooperation. Deeds thus need to accompany words in order to make these words credible.

Motivations of leaders: restore social capital

Conflicts of material interests

Once the social capital of a group is eroded, group members face a conflict of material interest between their individual interests and the collective interest of restoring the collective good of social capital of the group as a whole. In particular, the leader has to incur material costs in order to restore the credibility of the narrative of mutual cooperation. Whereas these costs are borne by the leader, the benefits of restoring a cooperative team spirit accrue to the group as a whole. Moreover, the costs for the leader are typically substantial because trust is easier to lose than to restore. It may therefore take considerable time before social capital is restored.

Leader takes credit risk

By investing in the restoration of social capital, the leader takes credit risk. If the leader would defect, she would collect a risk-free pay-off of zero. If the leader cooperates, in contrast, she faces risk and makes herself vulnerable. The upside is that others eventually start to cooperate because their trust is restored, but the downside is that the followers continue to defect.

[14] Nobel-prize winner Michael Spence developed this signaling theory; see Spence (1973).

A risk-bearing investment

An important precondition for the willingness of a rational leader to voluntarily accept the vulnerability of commitment is that the leader features sufficient faith in the reciprocity of the followers. A rational leader will cooperate if the following inequality holds:

$$q(B-C)(1+Na)-(1-q)C>0.$$

As in equation (1), the parameter a denotes the strength of agape love. The symbol q represents the risk-neutral probability[15] that the followers respond to the cooperation of the leader by cooperating as well. It thus measures the extent to which followers trust the leader.[16] N represents the number of followers. The inequality that is required for the leader to cooperate can be written as

$$R(1+Na)>\frac{1-q}{q}. \quad (2)$$

Hence, the actual risk premium[17] on the left-hand side of expression (2) must exceed the required risk premium[18] on the right-hand side of expression (2).

Faith, hope, and love

Expression (2) formalizes the relevance of the faith, hope, and love of the leader for creating cooperation and the associated material value. q denotes faith in the cooperation partners, $R\equiv\frac{B-C}{C}$ represents the hope of a material surplus from cooperation, and a stands for the love of the leader for the other members of the group. Indeed, the higher these parameters, the more likely cooperation becomes.

[15] The risk-neutral probability adjusts the actual probability of risk-aversion of the leader. The risk-neutral probability that the other player cooperates is less than the actual probability if the leader is risk-averse. The reason is that the leader attaches a smaller welfare weight to the upside (B-C)(1+a) than to the downside -C. Indeed, the welfare weight typically declines with the size of the pay-off because of declining marginal utility.

[16] This trust can also be interpreted as a measure of patience (longsuffering) if we interpret q as the proportion of the future in which the followers will cooperate as a result of the leader cooperating in the current period. (1-q) represents the proportion of the time for which the leader is willing to suffer a loss.

[17] The actual risk premium $\frac{(B-C)(1+Na)}{C}=R(1+Na)$ is the return over and above the investment C that is reaped if the investment does not fail (i.e. in the contingency that the followers respond to the investment of the leader by investing as well).

[18] The required risk premium $\frac{1-q}{q}$ is the additional return over and above the investment that is required in case the investment fails to compensate for the risk that the investment fails. One can view this risk premium as the required premium for the credit risk.

Agape as believing and hoping love

Agape love requires courage. Indeed, a leader motivated by agape love dares to depart from the non-cooperative behavior of others in the group. Rather than punishing the group by also defecting, the leader in effect forgives those who harm her. The leader is able to go beyond the moral sentiments of direct reciprocity because of her ability to look beyond the current non-cooperative behavior of others and imagine a future that differs from what is seen today. She trusts that those who appear to be enemies now are in fact her friends and will act cooperatively once their trust in cooperation is restored. This unconditional, forgiving love that goes beyond direct reciprocity because of faith and hope, is agape love.[19]

5. Reflections and conclusions

Methodology of economics

This paper has used theological concepts but has employed the methodology of economics: first, modelling behavior on the basis of constrained optimization by individual decision-makers who compare benefits and costs and, second, creating cooperation between individuals by removing conflicts of individual interests so that these interests run parallel. This economic methodology shows that cooperation can be achieved in two ways: first, by imposing additional restrictions on individual behavior so that the material self-interest runs parallel with the collective interest, and second, by broadening the values in the objective functions of the decisionmakers so that self-interest includes the interests of others.

Law versus grace

From a theological perspective, these two approaches can be associated with respectively the first covenant of the law and the second covenant of grace as faith in love. Indeed, enforcement of the law is primarily based on the threat and fear of punishment. The second covenant, in contrast, is primarily based on love enforced by hope as the anticipatory joy of cooperation.

Hard institutions enforcing material reciprocity

The traditional way to create cooperation in economics is considered in section 3. By imposing additional constraints ('agreements') in the first stage of a sequential game, leaders prevent the players in the second stage of the game from obtaining material goods without properly compensating others. By thus organizing direct reciprocity between giving and receiving material goods, the leaders ensure that the individual material interests of players run parallel. These so-called hard institutions thus rely on the material self-interest of the followers. The transaction costs associated with making and enforcing these constraining rules may be substantial, especially in the case of complex cooperation. Moreover, punishment for not

[19] Compare the description of agape love in 1 Corinthians 13:7: "It always trusts, always hopes, always perseveres."

cooperating may be counterproductive if intrinsically reciprocal players view the rules imposed by the leader as illegitimate because they do not trust the leader to act in their interests.

Soft institutions broadening self-interest

This is why a second approach to creating cooperation becomes relevant. Rather than imposing and enforcing more constraints on people, so-called soft institutions rely on broadening welfare in the objective function of individuals. Such an approach removes conflicts of interest by inducing individuals to mentally internalize the external effects of their behavior. In particular, individuals enjoy social and spiritual goods if they serve others. Individuals are then intrinsically, rather than extrinsically, motivated to pursue the collective interest of the common good of the group.

Agape love motivated by hope

This approach of creating cooperation by broadening self-interest beyond material self-interest may imply lower transaction costs than those resulting from hard institutions because the soft approach does not require imposing and enforcing constraints that ensure material reciprocity for all players at all times. These soft institutions, however, rely on reciprocal love activated by mutual trust—and building up this trust may necessitate leaders incurring substantial costs in order to make cooperative covenantal narratives credible. By being intrinsically motivated by hope (i.e. the spiritual good of working in the present towards a social good in the future), an agape leader is willing to bear these material costs because the benefits of the spiritual goods offset the material costs. The spiritual good of hope thus eliminates conflicts of interests.

Hard and soft institutions as complements

Hard institutions (i.e., inclusive lawmakers and independent courts enforcing reciprocity by designing and enforcing laws and regulations) and soft institutions (i.e., a high level of social capital creating mutual love, respect, and service) can be complements by strengthening each other. In particular, social capital encourages leaders and enforcers to focus on the collective interest of the group as a whole rather than only on their own material interest. Moreover, with high levels of social capital, laws become self-enforcing, and thus more effective (see Bowles 2016). As regards the causality from hard to soft institutions, inclusive hard institutions take away the fear that free-riders exploit the group. By thus raising the trust in cooperation, this increases the motivation of strongly reciprocal citizens to cooperate.[20] Hence, hard institutions can crowd in intrinsic motivation.

[20] In practice, a leader may face a heterogenous group with people motivated by material self-love and people motivated by reciprocal love. The leader then has two roles corresponding to the two types of motivations. First, as regards the players motivated by eros love, the leader has to enforce cooperation through credible punishments for those who do not comply with an agreement to cooperate. Second, as regards the players motivated by philia love, the leader needs to build trust in the social norm of

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cooperation. Also *eros* players must have faith that they will be rewarded if they cooperate. Leaders should thus speak softly (to create trust for all) but also carry a big stick (to create material incentives for those motivated by *eros* love). See also Kosfeld (2020).